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Docket No.: 214799US0CONT

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313



ATTORNEYS AT LAW

RE: Application Serial No.: 09/982,237

Applicants: Hartwig LANGE, et al.

Filing Date: October 19, 2001

For: STABLE AND HIGH SOLIDS AQUEOUS  
DISPERSIONS OF BLOCKED POLYISOCYANATES

Group Art Unit: 1711

Examiner: R. Gorr

SIR:

Attached hereto for filing are the following papers:

**APPEAL BRIEF W/APPENDIX (IN TRIPPLICATE)**

Our check in the amount of \$320.00 is attached covering any required fees. In the event any variance exists between the amount enclosed and the Patent Office charges for filing the above-noted documents, including any fees required under 37 C.F.R. 1.136 for any necessary Extension of Time to make the filing of the attached documents timely, please charge or credit the difference to our Deposit Account No. 15-0030. Further, if these papers are not considered timely filed, then a petition is hereby made under 37 C.F.R. 1.136 for the necessary extension of time. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF:

Hartwig LANGE et al : GROUP ART UNIT: 1711

SERIAL NO.: 09/982,237 : EXAMINER: R. Gorr

FILED: October 19, 2001 :

FOR: STABLE AND HIGH SOLIDS AQUEOUS  
DISPERSIONS OF BLOCKED POLYISOCYANATES

**APPEAL BRIEF**

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VA., 22313

SIR:

The following is an appeal to the Board of Appeals concerning the final decision by the Examiner dated February 24, 2003 to reject the claims of the above-identified application.

**REAL PARTY OF INTEREST**

DEGUSSA AG is the real party of interest in the above-identified application.

**RELATED APPEALS AND INTERFERENCES**

There are no cases on appeal or in interference before the Board of Appeals and Interferences that are related to the present application.

**STATUS OF CLAIMS**

Claims 6-11 and 19-21 are under active consideration.

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## **STATUS OF AMENDMENTS**

No amendment subsequent to the final Office Action dated February 24, 2003 has been filed into the record of the case.

## **SUMMARY OF THE INVENTION**

In one embodiment of the invention, a stable and high-solids aqueous dispersion containing auxiliary solvent is claimed, which comprises a disperse phase of a polyisocyanate mixture comprising (a) from 20-70% by weight of a blocked, hydrophilically modified polyisocyanate (A) and (b) from 30-80% by weight of a blocked, hydrophobic polyisocyanate (B) in an auxiliary solvent (G), the product aqueous dispersion having a solids content ranging from 35-80 % by weight.

Support for this embodiment as claimed may be found in the first paragraph of page 8 of the text and in lines 17-20 of page 8 of the specification.

In another embodiment of the invention, a stable and high-solids aqueous dispersion is claimed that is virtually free of auxiliary solvent, which comprises a disperse phase of a polyisocyanate mixture comprising (a) from 20-70% by weight of a blocked, hydrophilically modified polyisocyanate (A) and (b) from 30-80% by weight of a blocked, hydrophobic polyisocyanate (B), having a solids content ranging from 40-60 % by weight and a content of auxiliary solvent (G) of <2 % by weight.

Support for this embodiment as claimed may be found in the first paragraph of page 8 of the text, in lines 17-24 of page 8 and in the paragraph bridging pages 9 and 10 of the specification.

In still another embodiment of the invention, a method of preparing a film-forming resin is claimed, comprising combining the dispersion of claim 6, as a cross-linking agent, with an

aqueous film-forming resin in which the resin contains an average of >1.5 NCO-reactive groups in each molecule.

Support for this embodiment as claimed may be found in the paragraph bridging pages 25 and 26 of the specification.

In yet another embodiment of the invention, a stable and high-solids aqueous dispersion containing auxiliary solvent is claimed, which comprises a disperse phase of a polyisocyanate mixture comprising (a) from 20-70% by weight of a blocked, hydrophilically modified polyisocyanate (A) and (b) from 30-80% by weight of a blocked, hydrophobic polyisocyanate (B) in an auxiliary solvent (G), the product aqueous dispersion having a solids content ranging from 35-80 % by weight in which the blocked, hydrophilically modified polyisocyanate (A) facilitates the dispersion of blocked, hydrophobic polyisocyanate (B) in the product aqueous dispersion.

Support for this embodiment as claimed may be found in Claim 6 and in lines 4-7 of page 11 of the specification.

## ISSUES

Whether Claims 6-11 and 19-21 are anticipated based on 35 USC 102(b) over the disclosure of Burkhardt et al, U.S. Patent 4,098,933.

## GROUPING OF CLAIMS

Claims 19 and 20 do not stand or fall together with the other active claims on appeal.

## ARGUMENT

The Burkhardt et al patent is clearly of relevance to the present invention because it is

within the same technical field as the present invention of preparing aqueous dispersions of blocked polyisocyanates. As briefly discussed in the paragraph bridging pages 3 and 4 of the present specification, Burkhardt et al (DE 24 56 469), in preparing a high solids content aqueous dispersion of blocked polyisocyanates, starts the preparation by preparing partially blocked polyisocyanate which then is subsequently reacted with a hydrophilicizing agent which contains an NCO-reactive group and also a hydrophilic or potentially hydrophilic group. Example 1 of the patent is characteristic of this process and describes the initial reaction of a polyisocyanate (biuretized hexamethylene diisocyanate) with a blocking agent that is acetoacetic acid ethyl ester. In the particular reaction of the example, the polyisocyanate contains 23.8 wt % NCO groups, and upon completion of the blocking reaction, the blocked product contains 1.5 % by wt of free NCO groups. Subsequently, the hydrophilicizing agent, N-methylaminoethane sulfonic acid, is reacted with the remaining free NCO groups of the blocked polyisocyanate, and after removal of unreacted blocking agent, the desired product of blocked polyisocyanate containing hydrophilic groups is obtained. However, as appellants have consistently argued of record, this product of the patent is **not** that of the present invention as claimed in Claims 6 and 8. That is, as the present claims require, the stable and high-solids aqueous dispersion which contains auxiliary solvent is comprised of a disperse phase of a polyisocyanate mixture constituted of (a) from 20-70% by weight of a blocked, hydrophilically modified polyisocyanate (A) and (b) from 30-80% by weight of a blocked, hydrophobic polyisocyanate (B). The product aqueous dispersion has a solids content ranging from 35-80 % by weight. The product of the invention can **not** be prepared by the procedure disclosed in Burkhardt et al, but rather must be prepared by mixing separately prepared blocked polyisocyanate and blocked polyisocyanate modified with a hydrophilic group materials in the stated amounts. Disadvantages of the procedure of Burkhardt et al are overcome in the present invention. That is, because the procedure of the

patent starts with a blocked polyisocyanate of low NCO content, upon reaction of the polymer with the hydrophilicizing agent, long reaction times are required which is uneconomical. Further, in this hydrophilic group introducing reaction, not all of the remaining NCO-groups, i.e., the free NCO groups remaining after the blocking group introducing reaction, are reacted with the hydrophilicizing agent.

In taking the position that the Burkhardt et al patent anticipates the present invention, the Examiner refers to Example 1 and states that if 75 % of the isocyanate groups of the biuret of hexamethylenediisocyanate are blocked, then it necessarily follows that upon subsequent reaction of the blocked polymer with hydrophilicizing agent, the conditions of present claim 6 are met meaning that the resulting composition would contain from 20-70% by weight of a blocked, hydrophilically modified polyisocyanate (A) and from 30-80% by weight of a blocked, hydrophobic polyisocyanate (B). Appellants, however, do not concur. It must be pointed out that the biuret of hexamethylenediisocyanate is a molecule that contains three free isocyanate groups, not two. Upon reaction of the biuret of hexamethylenediisocyanate containing 2.267 NCO equivalents with blocking agent to produce partially blocked polyisocyanate containing 0.283 NCO equivalents, it is not clear that the product that results necessarily, after reaction with the hydrophilicizing agent, N-methylaminoethane sulfonic acid, meets the polyisocyanate distribution conditions of the present claims. Not only may the product contain less than 20 % by wt blocked, hydrophilic polyisocyanate, it may also contain some significant amount of **unblocked**, hydrophilic polyisocyanate by virtue of the manner in which the reactions of Example 1 are conducted. Accordingly, the procedure of the patent is not believed to anticipate the present dispersion as claimed which specifies the combination of two distinct components of 20-70% by weight of a blocked, hydrophilically modified polyisocyanate (A) and from 30-80% by weight of a blocked, hydrophobic polyisocyanate (B).

**Claim 19**

The method of Claim 19 is directed to the aspect of the invention in which the dispersion of Claim 6, as a cross-linking agent, is combined with an aqueous film-forming resin in which the resin contains an average of >1.5 NCO-reactive groups in each molecule. However, there is no teaching or suggestion of the use of such a dispersion as claimed in Claim 6 with a film forming resin that contains the indicated amount of NCO-reactive groups in the patent. Accordingly, Claim 19 stands separately patentable from the rest of the claims.

**Claim 20**

Claim 20 stands separately directed to a melamine resin as a film-forming resin. However, the Burkhardt et al patent does not appear to teach or suggest such a film-forming resin.

In view of the comments above, appellants maintain that the decision by the Examiner to continue the rejection of the claims is improper and should be reversed.

Respectfully submitted,

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## **FINDINGS OF FACT**

1. The Burkhardt et al patent discloses a method of preparing a water-dispersed blocked polyisocyanate that relies upon a partially blocked polyisocyanate as the starting material for a reaction in which the blocked polyisocyanate is reacted with a hydrophilicizing agent. The product obtained is not taught or suggested as being comprised of 20-70 % by wt of blocked, hydrophilically modified polyisocyanate (A) and from 30-80% by weight of a blocked, hydrophobic polyisocyanate (B).

**CONCLUSION OF LAW**

1. Claims 6-11 and 19-21 are not anticipated by Burkhardt et al, U. S. Patent 4,098,933 under 35 USC 102(b).

## APPENDIX

### CLAIMS ON APPEAL

Claim 6. A stable and high-solids aqueous dispersion containing auxiliary solvent, which comprises:

a disperse phase of a polyisocyanate mixture comprising (a) from 20-70% by weight of a blocked, hydrophilically modified polyisocyanate (A) and (b) from 30-80% by weight of a blocked, hydrophobic polyisocyanate (B) in an auxiliary solvent (G), the product aqueous dispersion having a solids content ranging from 35-80 % by weight.

Claim 7. The dispersion as claimed in Claim 6, which has a content of auxiliary solvent (G) of less than 25 % by weight.

Claim 8. A stable and high-solids aqueous dispersion which is virtually free from auxiliary solvent, which comprises:

a disperse phase of a polyisocyanate mixture comprising (a) from 20-70% by weight of a blocked, hydrophilically modified polyisocyanate (A) and (b) from 30-80% by weight of a blocked, hydrophobic polyisocyanate (B), having a solids content ranging from 40-60 % by weight and a content of auxiliary solvent (G) of <2 % by weight.

Claim 9. The dispersion as claimed in Claim 8, which has a content of auxiliary solvent (G) of < 0.5 % by weight.

Claim 10. The dispersion as claimed in Claim 6, wherein the blocked, hydrophilically modified polyisocyanate (A) is a blocked, ionic, hydrophilically modified polyisocyanate which forms by complete or partial neutralization of a polyisocyanate having a potentially hydrophilic group.

Claim 11. The dispersion as claimed in Claim 10, wherein the potentially hydrophilic group is a carboxyl group and the neutralizing agent (H) is ammonia or an amine.

Claim 19. A method of preparing a film-forming resin, comprising:  
combining the dispersion of claim 6, as a cross-linking agent, with an aqueous film-forming resin in which the resin contains an average of >1.5 NCO-reactive groups in each molecule.

Claim 20. The method of Claim 19, wherein said film-forming resin is a melamine resin.

Claim 21. A stable and high-solids aqueous dispersions containing auxiliary solvent, which comprises:

a disperse phase of a polyisocyanate mixture comprising (a) from 20-70% by weight of a blocked, hydrophilically modified polyisocyanate (A) and (b) from 30-80% by weight of a blocked, hydrophobic polyisocyanate (B) in an auxiliary solvent (G), the product aqueous dispersion having a solids content ranging from 35-80 % by weight in which the blocked, hydrophilically modified polyisocyanate (A) facilitates the dispersion of blocked, hydrophobic polyisocyanate (B) in the product aqueous dispersion.